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Notodiaptomus paraensis n. sp., a new diaptomid (Crustacea, Copepoda)
from the Brazilian Amazon

by

B. Dussart* and B. Robertson**

*Station Biologique, F - 24620 Les Eyzies, France

**INPA, CP 478, 69000 Manaus, Amazonas, Brazil

Abstract

Notodiaptomus paraensis, a new species of Calanoid copepod, is described from material collected in the Curuá-Una Reservoir, located in the State of Pará, Brazil.

Keywords: Calanoid copepod, reservoir, Amazon basin.

In 1976 BRANDORFF suggested that the Amazon region was still "insufficiently explored" and that further collecting, particularly in Brazil, would increase the list of known South American diaptomid species. Collecting has since been intensified and the result, as predicted, is a number of new copepod species (DUSSART & DEFAYE 1983; DUSSART & MATSAMURA-TUNDISI, in press), including the one described here.

Material investigated: Plankton samples from the Curuá-Una Reservoir (02°48'38"S, 54°18'55"W), located in the state of Pará. According to JUNK et al. (1981) the rivers which flow into the reservoir, the Curuá-Una and its tributaries, the Muju and Mojuí dos Campos are all clear water rivers. pH ranges between 3.9 and 7.4 and conductivity between 9.29 and 30.42 $\mu\text{S}/\text{cm}$.

Notodiaptomus paraensis n. sp.

Conventions used in the description: P₅ - fifth leg, Coxa - coxopodite, Bsp - basipodite, Exp₁ - first exopodite, Exp₂ - second exopodite, Exp₃ - third exopodite, Enp - endopodite.

Female (Fig. 1a): Total length 1.37 - 1.57 mm (\bar{x} = 1.44 mm). The last thoracic segment is slightly asymmetrical (Fig. 1b). The left side is rounded with an inconspicuous internal spine and a much larger, conical, terminal spine. The right side, more elongate, also has a small internal spine and a large terminal spine directed laterally.

The first abdominal segment is long and broadened in the first proximal third where on the left side there is a short, strong, spine, and on the right, a smaller spine directed more obliquely. Dorsally, the distal border of this segment is quite peculiar, very asymmetric, obscuring the very short 2nd abdominal segment. The 2nd abdominal segment (Fig. 1c, d) while short, is also strongly asymmetric, presenting a long spine-like expansion on the right side. The 3rd abdominal segment is only slightly asymmetric. The furcal rami are long and bear hairs internally and externally. The external hairs are arranged in tufts. The outer setae of the furca arise from the proximal third of the segment. The antennule reach the furcal rami. The rostral spines are relatively long and pointed (Fig. 1f).

P₅ (Fig. 1e): The coxa has a single, strong, conical spine. Bsp presents a very long lateral setae. Exp₁ is quite simple, twice as long as wide. Exp₂ has a single lateral spine almost as long as Exp₃. Exp₃ consists of two unequal spines, one about three times as long as the other. The endopod is unsegmented, nearly as long as Exp₁, and bears distally two slender spinules, one subterminal and one sublateral, as well as an oblique fringe of hairs.

Male (Fig. 2a): Total length 1.09 - 1.31 mm (\bar{x} = 1.20 mm). Body oval. Last thoracic segment slightly asymmetric, bearing on either side a small delicate internal spine and a long, thin terminal spine directed more or less obliquely. The first abdominal segment (Fig. 2d) has a small delicate spine on either side, the right being a little lower than the left which is centrally located. Segments 2 and 3 are symmetric. Segments 4 and 5 are asymmetric, with an accentuated projection to the right. Furcal rami bear internal hairs only. The outer setae arise from approximately the middle of the rami. The rostral spines are narrow and pointed (Fig. 2c).

The antennule reach the furcal rami. The right antennule (Fig. 3a) has spine-like processes on segments 13, 15 and 16, spines on segments 8, 10, 11 and 12. The process of segment 13 is long and strong, reaching well past the middle of the 14th segment. The spines on segments 8 and 12 are small and triangular, and those on segments 10 and 11 are long and directed parallel to the segments. A relatively wide hyaline lamella occurs on the antepenultimate segment (Fig. 3b).

P₅ (Fig. 2b), right leg: The coxa has a long, fine, curved spine on the extremity of a large expansion which reaches beyond the middle of the Bsp segment. Bsp bears a lateral seta, is broadened posteriorly and at the distal interior angle there is a conspicuous, reinforced, button-like projection which obscures the small endopod. The endopod is small, simple, unsegmented and bears a fringe of short hairs at the distal extreme. Exp₁ is a little shorter than broad and pointed at the distal interior and distal exterior angles. Exp₂ is twice as long as wide, with the lateral spine inserted at the distal half of the segment. The lateral spine is approximately one third of the terminal spine which is long and regularly curved.

P₅, left leg: In length the left leg reaches the Exp₂ of the right leg. Coxa carries a straight, slender, spine at the end of an external mammiform process. Bsp is elongated and bears a lateral seta at the distal external angle. The internal distal angle is slightly broadened at the insertion of the endopod. The endopod is one segment, long, and bears distally an obliquely oriented fringe of hairs. The exopodite is two segmented, and each segment presents an internal pad bearing a crown of hairs. The second segment ends in a slightly denticulate digitiform process. From the base of the distal pad there emerges a curved, apparently smooth spine which surpassed slightly the end of the segment.

Notodiaptomus paraensis f. *similis*

Infrequent male specimens, which differ slightly from *N. paraensis*, were also found in the samples. Similar situation was encountered by WRIGHT (1927) with "*Diaptomus*" *silvaticus*. These males can be distinguished by the following differences: they tend to be a little larger (total length 1.26 - 1.34 mm, \bar{x} = 1.30 mm); on the antepenultimate segment of the right antennule there is a relatively long, curved, process (Fig. 3d), pointed at the end, which reaches the terminal segment, (no intermediary forms, that is, males with short processes were found), and the lateral exopod spine of the right P₅ (Fig. 3c) is somewhat longer than in *N. paraensis*.

While there are still problems in allocating Amazonian diaptomids to their appropriate genera (BRANDORFF 1976; BRANDORFF, KOSTE & SMIRNOV 1982; DUSSART & DEFAYE 1983), the new species belongs to the genus *Notodiaptomus* on account of the characteristic hyaline lamellae on the Exp₁ of the male's right P₅, the male's right antennule spine pattern and the male's left P₅.

N. paraensis has greatest affinity with *N. kieferi* and with what BRANDORFF (1976) called *Calodiaptomus perelegans*. The last, perhaps, in the future, should be assigned to a new group somewhere near "*Diaptomus*" *silvaticus*. Clearly there is a need for reconsideration, however, as yet, it is early to revise the diaptomid group. Many species are still inadequately described, particularly with respect to the P₅ of the males. For the moment it is sufficient to recognize that, within the genus *Notodiaptomus*, (senso lato), one can organize a group of species based on the left P₅ of the males which includes: *N. gibber* (POPPE), *inflatus* (KIEFER), *anceps*? BREHM, *lobifer* (PESTA), *kieferi* (BRANDORFF), *orellanai* DUSSART, *dilatatus* DUSSART, probably *silvaticus* WRIGHT, and now *paraensis* DUSSART & ROBERTSON.

The holotype, lectotype and paratypes are deposited at the Instituto Nacional de Pesquisas da Amazônia, Manaus, Brasil. Other paratypes are deposited at the Museum National d'Histoire Naturelle de Paris, France.

Resumo

Notodiaptomus paraensis, uma nova espécie de copepoda Calanoida, é descrita de material proveniente da Represa de Curuá-Una, Pará, Brasil.

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Authors' addresses:

Dr. B. Dussart
Station Biologique
F - 24620 Les Eyzies
France

B. Robertson
INPA
C. P. 478
69.000 Manaus/AM
Brasil

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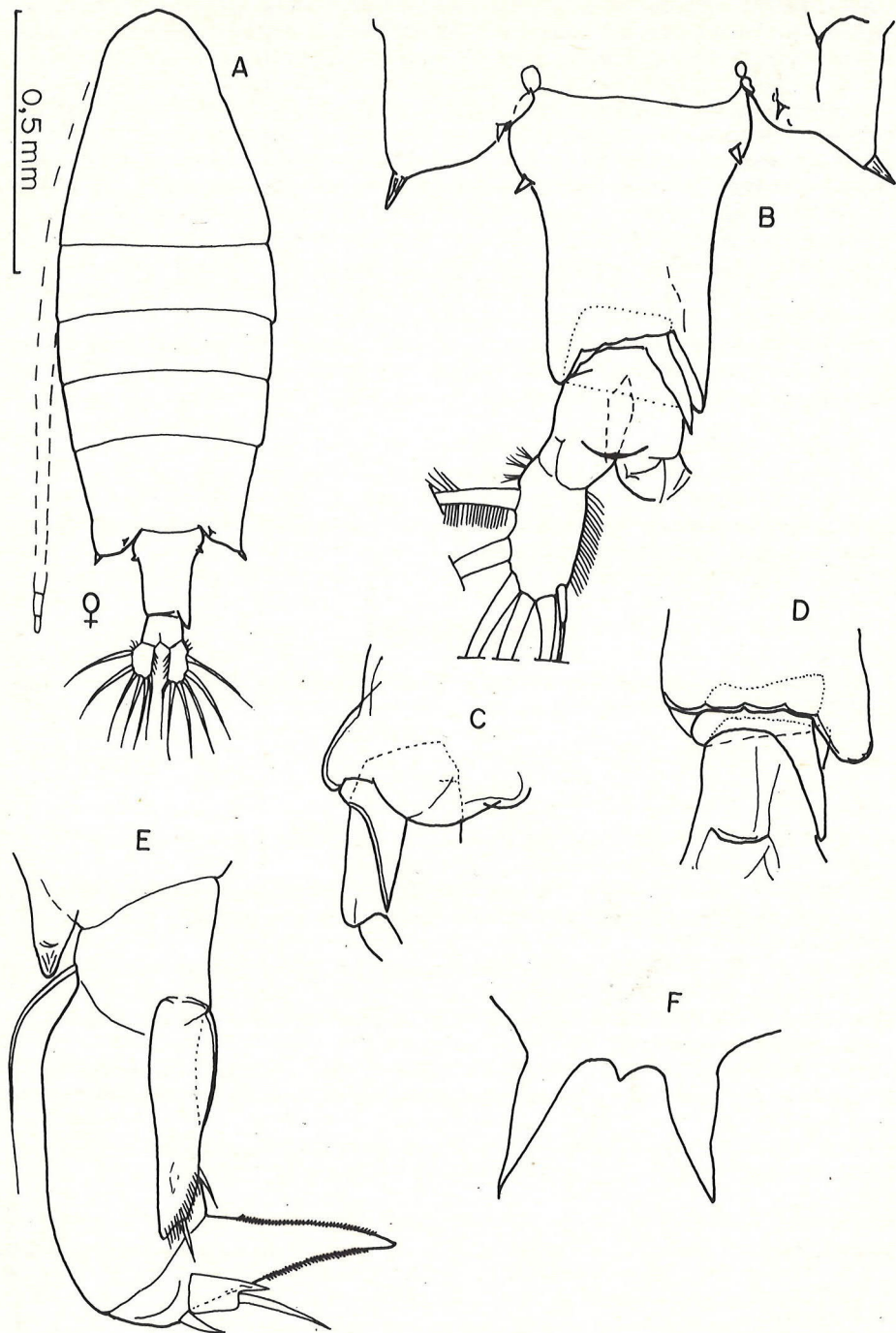


Fig. 1:
Notodiaptomus paraensis
A. Adult female; B. Last thoracic and abdominal segments; C. 2nd abdominal segment;
D. Lateral view of 2nd abdominal segment; E. P₅; F. Rostrum.

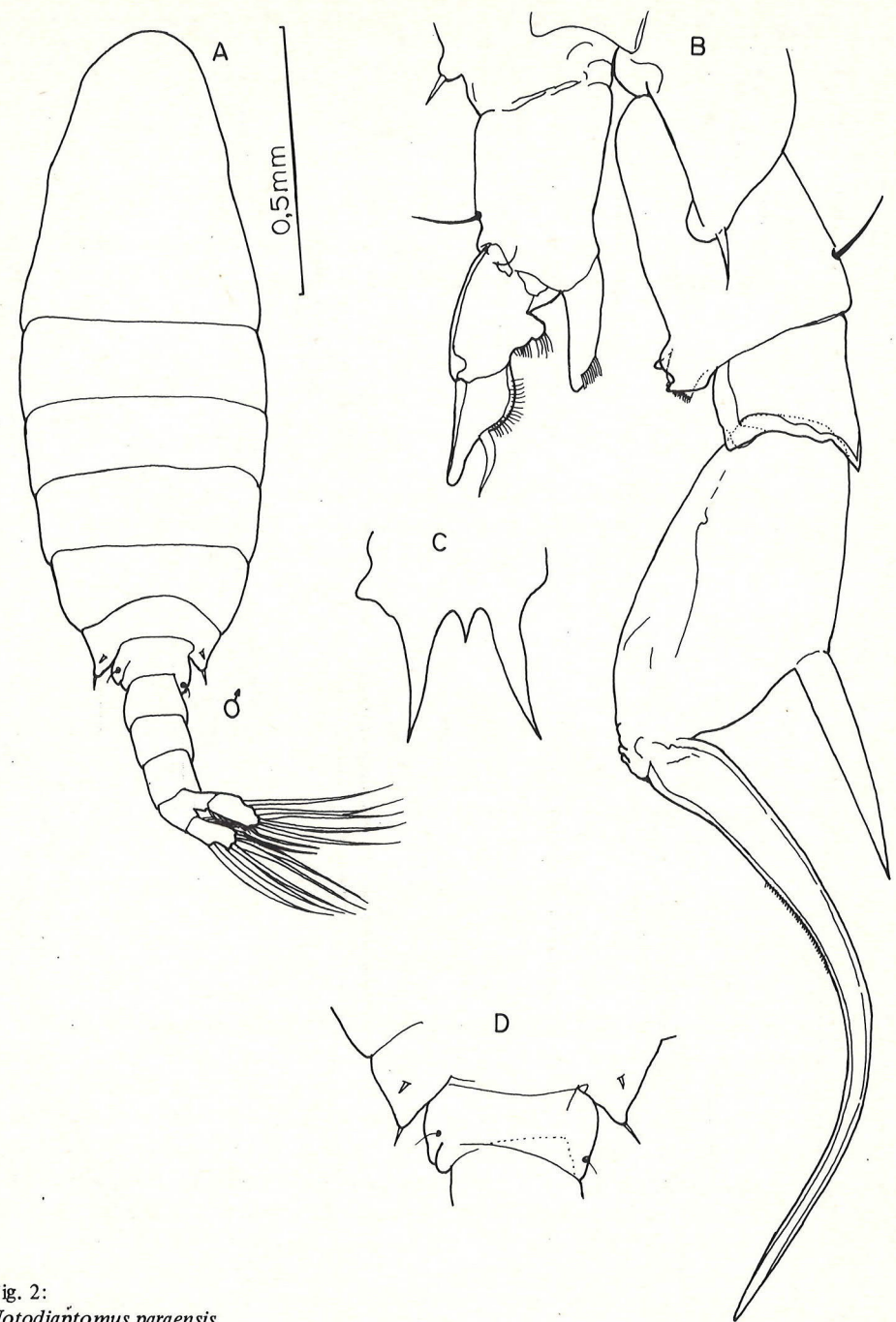


Fig. 2:
Notodiaptomus paraensis
A. Adult male; B. P₅; C. Rostrum; D. Last thoracic and 1st abdominal segment.

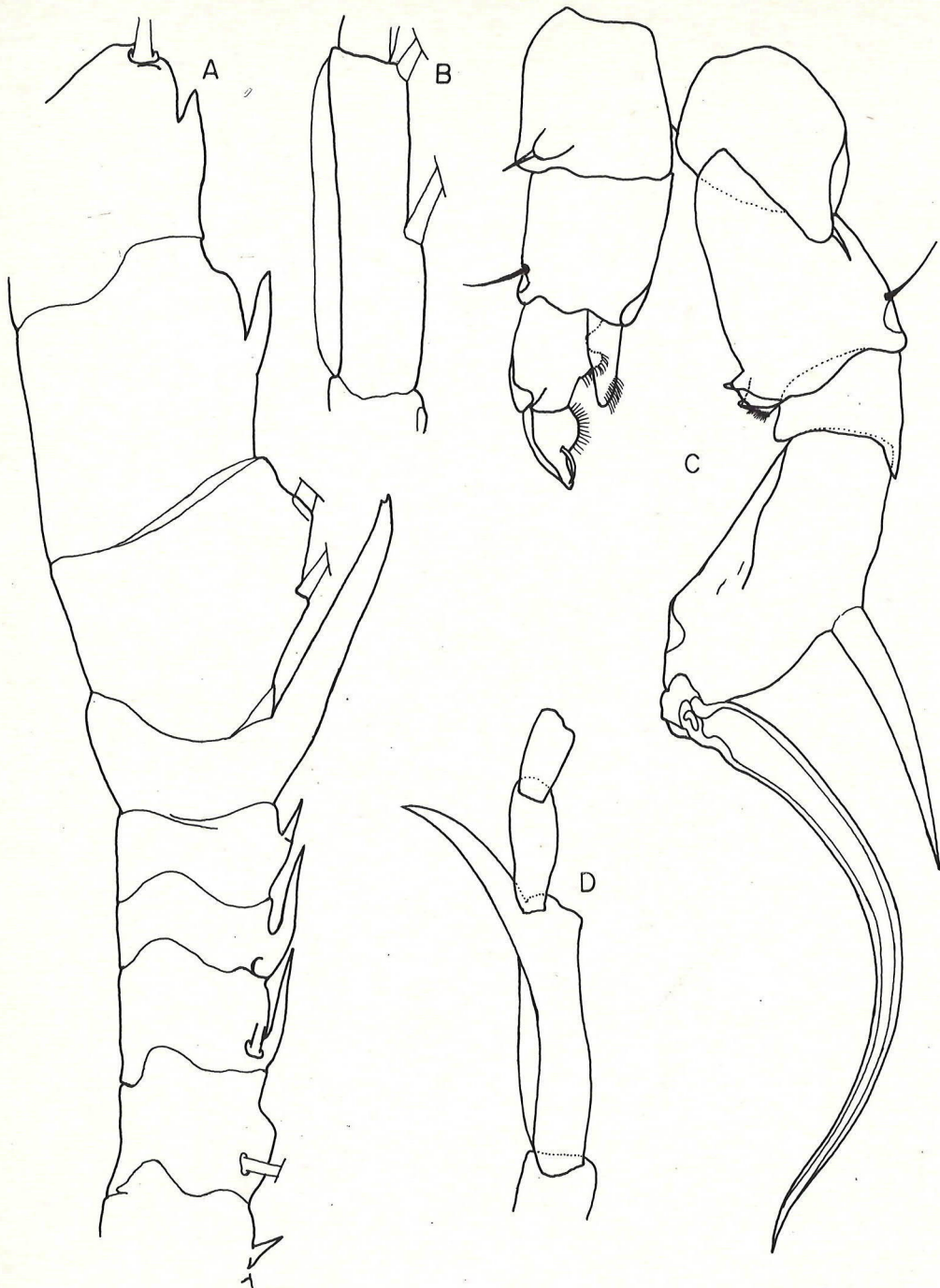


Fig. 3:

Notodiaptomus paraensis

A. male's right antennule; B. antepenultimate segment of male's right antennule;

C. *N. paraensis* f. *similis* - male P₅; D. process on male's right antennule.